

What is claimed is:

1. A method of inhibiting B or T cell proliferation or activation in a
5 mammal, which comprises administering a therapeutic agent comprising:
 - a. a specific binding partner for TACI, wherein the specific binding partner has TACI antagonist activity;
 - b. a specific binding partner for BCMA, wherein the specific binding partner has BCMA antagonist activity;
 - 10 c. both a and b; or
 - d. a specific binding partner for TACI and BCMA, wherein the specific binding partner has TACI antagonist activity, BCMA antagonist activity or both.
- 15 2. A method of inhibiting APRIL activity in a mammal, which comprises administering a therapeutic agent comprising:
 - a. a specific binding partner for TACI, wherein the specific binding partner has TACI antagonist activity;
 - b. a specific binding partner for BCMA, wherein the specific binding partner has BCMA antagonist activity;
 - 20 c. both a and b; or
 - d. a specific binding partner for TACI and BCMA, wherein the specific binding partner has TACI antagonist activity, BCMA antagonist activity or both.
- 25 3. A method of inhibiting TACI activity, BCMA activity, or both in a mammal, which comprises administering a specific binding partner for APRIL.
4. The method of Claim 3, further comprising administering a specific binding partner for AGP-3.

5. A method of increasing T cell proliferation in a mammal, which comprises administering a therapeutic agent comprising:
- a specific binding partner for TACI, wherein the specific binding partner has TACI agonist activity;
 - a specific binding partner for BCMA, wherein the specific binding partner has BCMA agonist activity;
 - both a and b; or
 - a specific binding partner for TACI and BCMA, wherein the specific binding partner has TACI agonist activity, BCMA agonist activity or both.
- 10 6. A method of increasing APRIL activity in a mammal, which comprises administering a therapeutic agent comprising:
- a specific binding partner for TACI, wherein the specific binding partner has TACI agonist activity;
 - a specific binding partner for BCMA, wherein the specific binding partner has BCMA agonist activity;
 - both a and b; or
 - a specific binding partner for TACI and BCMA, wherein the specific binding partner has TACI agonist activity, BCMA agonist activity or both.
- 15 7. A method of treating B-cell lymphoproliferative disorders, which comprises administering a therapeutic agent comprising an amino acid sequence selected from:
- the extracellular region of TACI (SEQ ID NO: 15);
 - the extracellular region of BCMA (SEQ ID NO: 6);
 - the consensus region of TACI (SEQ ID NO: 16);
 - the consensus region of BCMA (SEQ ID NO: 7);
 - the TACI/BCMA extracellular consensus sequence (SEQ ID NO: 13).
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8. A method of treating T-cell lymphoproliferative disorders, which comprises administering a therapeutic agent comprising an amino acid sequence selected from selected from:

- 5 a. the extracellular region of TACI (SEQ ID NO: 15);
- b. the extracellular region of BCMA (SEQ ID NO: 6);
- c. the consensus region of TACI (SEQ ID NO: 16);
- d. the consensus region of BCMA (SEQ ID NO: 7);
- e. the TACI/BCMA extracellular consensus sequence (SEQ ID NO: 13)..

10 9. A method of treating one or more solid tumors, which comprises administering a therapeutic agent comprising an amino acid sequence selected from selected from:

- 15 a. the extracellular region of TACI (SEQ ID NO: 15);
- b. the extracellular region of BCMA (SEQ ID NO: 6);
- c. the consensus region of TACI (SEQ ID NO: 16);
- d. the consensus region of BCMA (SEQ ID NO: 7);
- e. the TACI/BCMA extracellular consensus sequence (SEQ ID NO: 13)..

20 10. The method of Claim 9, wherein the tumor is selected from lung, gastrointestinal, pancreatic and prostate

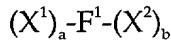
11. The method of any of Claims 1 to 6, wherein the specific binding partner is an antibody.

12. The method of Claim 11, wherein the antibody is a monoclonal antibody.

25 13. The method of Claim 11, wherein the antibody is a fully human antibody, a humanized antibody, or an antibody derived from a phage display library.

14. The methods of any of Claims 1 to 6, wherein the specific binding partner is a peptide.

15. The method of Claim 14, wherein the specific binding partner is comprised within a molecule of the formula



wherein:

5 F^1 is a vehicle;

X^1 and X^2 are each independently selected from $-(L^1)_c-P^1$, $-(L^1)_c-P^1-(L^2)_d-P^2$, $-(L^1)_c-P^1-(L^2)_d-P^2-(L^3)_e-P^3$, and $-(L^1)_c-P^1-(L^2)_d-P^2-(L^3)_e-P^3-(L^4)_f-P^4$

P^1 , P^2 , P^3 , and P^4 are each independently peptide sequences, wherein at least one is a specific binding partner;

10 L^1 , L^2 , L^3 , and L^4 are each independently linkers; and

a , b , c , d , e , and f are each independently 0 or 1, provided that at least one of a and b is 1.

16. The method of Claim 15, wherein the molecule comprises a structure of the formulae

15 X^1-F^1

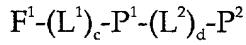
or



17. The method of Claim 15, wherein the molecule comprises a structure of the formula

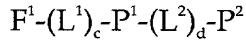
20 $F^1-(L^1)_c-P^1.$

18. The method of Claim 15, wherein the molecule comprises a structure of the formula



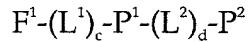
25 wherein one of P^1 and P^2 is a specific binding partner for TACI and the other is a specific binding partner for BCMA.

19. The method of Claim 15, wherein the molecule comprises a structure of the formula



wherein one of P¹ and P² is a specific binding partner for APRIL and the other is a specific binding partner for AGP-3.

20. The method of Claim 15 of the formula



5 wherein one of P¹ and P² is a specific binding partner for APRIL and the other is a specific binding partner for AGP-3.

21. The method of Claim 15, wherein the vehicle is an Fc domain.

22. The method of Claim 3, wherein the specific binding partner comprises a sequence selected from:

- 10 a. the extracellular region of TACI (SEQ ID NO: 15).
b. the extracellular region of BCMA (SEQ ID NO: 6).
c. the consensus region of TACI (SEQ ID NO: 16).
d. the consensus region of BCMA (SEQ ID NO: 7).
e. the TACI/BCMA extracellular consensus sequence (SEQ ID NO:

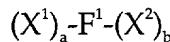
15 13).
23. The method of any of Claims 7, 8, 9 and 22, wherein the specific binding partner is covalently linked to a vehicle.

24. The method of Claim 23, wherein the vehicle is an Fc domain.

25. The method of Claim 3, wherein the specific binding partner is comprised within a molecule having an antibody sequence in which one or more antibody CDR regions are replaced by one or more sequences selected from:

- a. the extracellular region of TACI (SEQ ID NO: 15);
b. the extracellular region of BCMA (SEQ ID NO: 6);
c. the consensus region of TACI (SEQ ID NO: 16);
d. the consensus region of BCMA (SEQ ID NO: 7);
e. the TACI/BCMA extracellular consensus sequence (SEQ ID NO: 13);

- f. the sequence of a peptide capable of specifically binding APRIL; and
 - g. the sequence of a peptide capable of specifically binding AGP-3.
26. The method of any of Claims 7, 8, and 9, wherein said amino acid sequence replaces a CDR region within an antibody molecule.
- 5 27. A composition of matter of the formula



wherein:

- 10 F^1 is a vehicle;
- X^1 and X^2 are each independently selected from $-(L^1)_c \text{-} P^1$, $-(L^1)_c \text{-} P^1 \text{-} (L^2)_d \text{-} P^2$, $-(L^1)_c \text{-} P^1 \text{-} (L^2)_d \text{-} P^2 \text{-} (L^3)_e \text{-} P^3$, and $-(L^1)_c \text{-} P^1 \text{-} (L^2)_d \text{-} P^2 \text{-} (L^3)_e \text{-} P^3 \text{-} (L^4)_f \text{-} P^4$
- P^1 , P^2 , P^3 , and P^4 are each independently peptide sequences, wherein at least one is a specific binding partner for TACI, BCMA, or APRIL;
- 15 L^1 , L^2 , L^3 , and L^4 are each independently linkers; and
- a , b , c , d , e , and f are each independently 0 or 1, provided that at least one of a and b is 1.

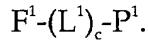
28. The composition of matter of Claim 27 of the formulae



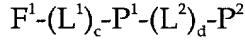
or



29. The composition of matter of Claim 27 of the formula



30. The composition of matter of Claim 27 of the formula



- 25 wherein one of P^1 and P^2 is a specific binding partner for TACI and the other is a specific binding partner for BCMA.

31. The composition of matter of Claim 27, wherein the vehicle is an Fc domain.

32. An isolated nucleic acid encoding the composition of matter of Claim 31.
33. The nucleic acid of Claim 32 including one or more codons preferred for Escherichia coli expression.
- 5 34. An expression vector comprising the nucleic acid of Claim 32.
35. A host cell transformed or transfected with the expression vector of Claim 34.
36. The host cell of Claim 35, wherein the cell is a prokaryotic cell.
37. The host cell of Claim 36, wherein the cell is Escherichia coli.

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